should not be limited to devices consisting only of components A and B. This expression signifies that, with respect to the present disclosure, the only relevant components of the device are A and B.

**[1080]** Furthermore, the terms "first," "second," "third," and the like, whether used in the description or in the claims, are provided for distinguishing between similar elements and not necessarily for describing a sequential or chronological order. It is to be understood that the terms so used are interchangeable under appropriate circumstances (unless clearly disclosed otherwise) and that the embodiments of the disclosure described herein are capable of operation in other sequences and/or arrangements than are described or illustrated herein.

What is claimed is:

**1**. A peristaltic pump for pumping fluid in a plurality of cycles where each cycle has at least a first stage and a second stage, the peristaltic pump comprising:

a biased plunger biased toward a tube;

a first valve upstream of the biased plunger;

a second valve downstream of the biased plunger; and

an actuator configured to: engage and disengage from the biased plunger, open or close the first valve, open or close the second valve, and allow the biased plunger to move toward the tube to discharge fluid, wherein the actuator is further configured to:

in the first stage, open the first valve and move the biased plunger away from the tube, and

in the second stage, close the first valve, move the biased plunger toward the tube, and disengage the actuator from the biased plunger.

**2**. The peristaltic pump according to claim **1**, wherein in a third stage, the second valve is opened and the actuator causes the biased plunger to move toward the tube to discharge fluid downstream past the second valve.

**3**. The peristaltic pump according to claim **2**, wherein in each cycle of the peristaltic pump, the first stage occurs prior to the second stage and the second stage occurs prior to the third stage.

**4**. The peristaltic pump according to claim **2**, wherein in the first stage, the second valve is closed.

**5**. The peristaltic pump according to claim **2**, wherein the actuator, a spring, and the biased plunger are configured to discharge the spring when the actuator disengages from the biased plunger.

**6**. The peristaltic pump according to claim **2**, wherein the actuator is configured to disengage from the biased plunger to thereby discharge a spring to bias the biased plunger against the tube.

**7**. The peristaltic pump according to claim **2**, wherein movement of the actuator does not correspond to movement of the biased plunger when the actuator disengages from the biased plunger.

**8**. The peristaltic pump according to claim **2**, wherein the actuator is configured to engage the biased plunger to lift the biased plunger away from the tube and disengage the biased plunger to allow a spring to generate a force from the biased plunger against the tube.

**9**. The peristaltic pump according to claim **2**, wherein the peristaltic pump is configured such that a force of the biased plunger applied to the tube by the biased plunger is produced by a spring and not the actuator.

**10**. The peristaltic pump according to claim **1**, wherein in the first stage, the second valve is closed.

**11**. The peristaltic pump according to claim **1**, wherein the actuator includes a cam and the biased plunger is coupled to a cam follower configured to follow the cam.

**12**. The peristaltic pump according to claim **1**, wherein the actuator includes a cam and the biased plunger is coupled to a cam follower configured to follow the cam.

**13**. The peristaltic pump according to claim **12**, wherein when the actuator engages with the biased plunger, the cam follower follows the cam.

**14**. The peristaltic pump according to claim **12**, wherein when the actuator engages with the biased plunger, the cam follower and the cam are in physical contact with each other.

**15**. The peristaltic pump according to claim **12**, wherein when the actuator is disengaged with the biased plunger, the cam follower does not follow the cam.

**16**. The peristaltic pump according to claim **12**, wherein when the actuator is disengaged with the biased plunger, the cam follower and the cam are not in physical contact with each other.

**17**. The peristaltic pump according to claim **1**, wherein the actuator, a spring, and the biased plunger are configured to discharge the spring when the actuator disengages from the biased plunger.

**18**. The peristaltic pump according to claim **1**, wherein the actuator is configured to disengage from the biased plunger to thereby discharge a spring to bias the biased plunger against the tube.

**19**. The peristaltic pump according to claim **1**, wherein movement of the actuator does not correspond to movement of the biased plunger when the actuator disengages from the biased plunger.

**20**. The peristaltic pump according to claim **1**, wherein the actuator is configured to engage the biased plunger to lift the biased plunger away from the tube and disengage the biased plunger to allow a spring to generate a force from the biased plunger against the tube.

**21**. The peristaltic pump according to claim **1**, wherein the peristaltic pump is configured such that a force of the biased plunger applied to the tube by the biased plunger is produced by a spring and not the actuator.

**22**. A peristaltic pump according to claim **1**, for pumping fluid in the plurality of cycles where each cycle has the first stage, the second stage, a third stage, and a fourth stage,

wherein:

in the third stage, the actuator is engaged with the biased plunger, the actuator moves the biased plunger away from the tube, and the second valve is opened, and

in the fourth stage, the actuator moves the biased plunger toward the tube to discharge fluid downstream past the second valve.

**23**. The peristaltic pump according to claim **22**, wherein in the first stage, the second valve is closed.

**24**. The peristaltic pump according to claim **22**, wherein the actuator includes a cam and the biased plunger is coupled to a cam follower configured to follow the cam.

**25**. The peristaltic pump according to claim **24**, wherein when the actuator engages with the biased plunger, the cam follower follows the cam.

**26**. The peristaltic pump according to claim **24**, wherein when the actuator engages with the biased plunger, the cam follower and the cam are in physical contact with each other.